10. Profit and Loss

Exercise 10A

1. Question

Find the gain or loss percent when:

(i) CP = Rs.620 and SP =Rs.713

(ii) CP = Rs.675 and SP = Rs.630

(iii) CP = Rs.345 and SP=Rs.372.60

(iv) CP = Rs.80 and SP = Rs.76.80

Answer

(i) CP = Rs.620 and SP =Rs.713

Since SP is more than CP. So, it is a case of Gain.

Gain = SP- CP

= 713 - 620

= 93

$$Gain\% = \frac{Gain \times 100}{CP}$$

$$= \frac{93 \times 100}{620}$$

= 15%

(ii) CP = Rs.675 and SP = Rs.630

Since CP is more than SP. So, it is a case of Loss.

Loss = CP- SP

= 675 - 630

= 45

$$Loss\% = \frac{Loss \times 100}{CP}$$

$$= \frac{45 \times 100}{675}$$

= 6.66%

(iii) CP = Rs.345 and SP=Rs.372.60

Since SP is more than CP. So, it is a case of Gain.

Gain = SP- CP

= 372.60 - 345

= 27.60

$$Gain\% = \frac{Gain \times 100}{CP}$$

$$= \frac{27.60 \times 100}{345}$$

= 8%

(iv) CP = Rs.80 and SP = Rs.76.80

Since CP is more than SP. So, it is a case of Loss.

Loss = CP- SP

= 80 – 76.80

= 3.20

$$Loss\% = \frac{Loss \times 100}{CP}$$

$$= \frac{3.20 \times 100}{80}$$

= 4%

2. Question

Find the selling price when:

(i) CP = Rs.1650 and gain = 4%

(ii) CP = Rs.915 and gain = $6\frac{2}{3}$ %

(iii) CP =Rs.875 and loss = 12%

(iv) CP = Rs.645 and loss = $13\frac{1}{3}$ %

Answer

(i) CP = Rs.1650 and gain = 4%

$$SP = \frac{100 + Gain\%}{100} \times CP$$

$$= \frac{100 + 4}{100} \times 1650$$

$$= \frac{104}{100} \times 1650$$

= 1716

So, Selling Price will be Rs.1716.

(ii) CP = Rs.915 and gain = $6\frac{2}{3}$ %

$$SP = \frac{100 + Gain\%}{100} \times CP$$

$$= \frac{100 + \frac{20}{3}}{100} \times 915$$

$$= \frac{\frac{320}{3}}{100} \times 915$$

= 976

So, Selling Price will be Rs.976.

(iii) CP =Rs.875 and loss = 12%

$$SP = \frac{100 - Loss\%}{100} \times CP$$

$$= \frac{100 - 12}{100} \times 875$$

$$= \frac{88}{100} \times 875$$

So, Selling Price will be Rs.770.

(iv) CP = Rs.645 and loss = $13\frac{1}{3}$ %

$$SP = \frac{100 - Loss\%}{100} \times CP$$

$$= \frac{100 - \frac{40}{3}}{100} \times 645$$

$$= \frac{\frac{260}{3}}{100} \times 645$$

$$= \frac{260}{300} \times 645$$

= 559

So, Selling Price will be Rs.559.

3. Question

Find the cost price when:

(i) SP = Rs.1596 and gain = 12%

(ii) SP = Rs.2431 and loss = $6\frac{1}{2}$ %

(iii) SP = Rs.657.60 and loss = 4%

(iv) SP = Rs.34.40 and gain = $7\frac{1}{2}$ %

Answer

(i) SP = Rs.1596 and gain = 12%

$$CP = \frac{100}{100 + Gain\%} \times SP$$

$$= \frac{100}{100 + 12} \times 1596$$

= 1425

So, Cost Price (CP) will be Rs.1425.

(ii) SP = Rs.2431 and loss = $6\frac{1}{2}$ %

$$CP = \frac{100}{100 - Loss\%} \times SP$$

$$= \frac{100}{100 - \frac{13}{2}} \times 2431$$

$$= \frac{100}{\frac{200 - 13}{2}} \times 2431$$

$$= \frac{100}{\frac{187}{2}} \times 2431$$

$$= \frac{200}{187} \times 2431$$

= 2600

So, Cost Price will be Rs.2600.

(iii) SP = Rs.657.60 and loss = 4%

$$CP = \frac{100}{100 - Loss\%} \times SP$$

$$= \frac{100}{100 - 4} \times 657.60$$

$$= \frac{100}{96} \times 657.60$$

= 685

So, Cost Price will be Rs.685.

(iv) SP = Rs.34.40 and gain = $7\frac{1}{2}\%$

$$CP = \frac{100}{100 + Gain\%} \times SP$$

$$= \frac{100}{100 + \frac{15}{2}} \times 34.40$$

$$= \frac{100}{\frac{215}{2}} \times 34.40$$

$$= \frac{200}{215} \times 34.40$$

= 32

So, Cost Price (CP) will be Rs.32.

4. Question

Manjit bought an iron safe for Rs.12160 and paid Rs.340 for its transportation. Then, he sold it for Rs.12875. Find his gain per cent.

Answer

Total Cost of an Iron Safe = Purchase Cost + Transportation

= 12160 + 340

= 12500

Cost Price (CP) of Iron Safe = Rs.12500

Selling Price (SP) of an Iron Safe = Rs.12875

Gain on Sell = SP – CP

= 12875-12500

= 375

Gain Percent = $Gain\% = \frac{Gain \times 100}{CP}$

$= \frac{375 \times 100}{12500}$

= 3%

So, Gain Percent on Iron Safe is 3%.

5. Question

Robin purchased an old car for Rs.73500. He spent Rs.10300 on repairs and paid Rs.2600 for its insurance. Then he sold it to a mechanic for Rs.84240. What was his percentage gain or loss?

Answer

Actual Price of an old car = Purchase Price + Overheads (Like Repairing Cost, Insurance)

= 73500 + 10300 + 2600

= 86400

Cost Price (CP) = Rs.86400

Selling Price (SP) = Rs.84240

Since, CP > SP. So, this will be considered as Loss.

Loss = CP – SP

= 86400 – 84240

= 2160

Hence,

$$Loss\% = \frac{Loss \times 100}{CP}$$

$$= \frac{2160 \times 100}{86400}$$

= 2.5%

So, Loss percent is 2.5%

6. Question

Hari bought 20 kg of rice at 36 per kg and 25 kg of rice at 32 per kg. He mixed the two varieties and sold the mixture at 38 per kg. Find his gain per cent in the whole transaction.

Answer

Total Weight of Rice = 20 + 25

= 45 Kg

Total Cost of both varieties of Rice = (20 × 36) + (25 × 32)

= 720 + 800

= 1520

So, CP of Rice = Rs.1520

Selling Price (SP) of Rice = Wt. × Rate

= 45 × 38

= 1710

Gain = SP – CP

= 1710 – 1520

= Rs.190

Gain Percent = $Gain\% = \frac{Gain \times 100}{CP}$

$$= \frac{190 \times 100}{1520}$$

$$= \frac{19000}{1520}$$

= 12.5%

So, Gain Percent in whole transaction is 12.5%.

7. Question

Coffee costing! 250 per kg was mixed with chicory costing Rs. 75 per kg in the ratio 5:2 for a certain blend. If the mixture was sold at Rs.230 per kg, find the gain or loss percent. Hint. Let 5 kg of coffee

be mixed with 2 kg of chicory.

Answer

Let × be the common multiple.

Cost of 5 Kg of Coffee => 5 × = 250 × 5 = Rs.1250

Cost of 2 kg of Chicory => 2 × = 75 × 2 = Rs.150

Cost of Mixture is;

5 × + 2 × = 1250 + 150

7 × = 1400

× = 1400/7 = Rs.200

So, CP of Mixture = Rs.200

And SP of Mixture = Rs.230

Since, SP > CP. So, it is a case of Gain.

Gain = SP – CP

= 230 – 200

= Rs.30

Gain Percent = $Gain\% = \frac{Gain \times 100}{CP}$

$= \frac{30 \times 100}{200}$

= 15%

8. Question

If the selling price of 16 water bottles is equal to the cost price of 17 water bottles, find the gain per cent earned by the dealer.

Answer

Let CP of 17 bottles = Rs.100.

CP of 17 bottles = SP of 16 bottles = Rs.100

SP of 17 bottles = $= \frac{100}{16} \times 17$

= Rs.106.25

Gain = SP – CP

= 106.25 – 100

= 6.25

$$Gain\% = \frac{Gain \times 100}{CP}$$

$$= \frac{6.25 \times 100}{100}$$

= 6.25%

9. Question

The cost price of 12 candles is equal to the selling price of 15 candles. Find the loss per cent.

Answer

Let SP of 15 candles = Rs.100.

CP of 12 candles = SP of 15 candles = Rs.100

CP of 15 candles = $= \frac{100}{12} \times 15$

= Rs.125

Loss = CP – SP

= 125 – 100

= 25

$$Loss\% = \frac{Loss \times 100}{CP}$$

$$= \frac{25 \times 100}{125}$$

= 20%

10. Question

By selling 130 cassettes, a man gains an amount equal to the selling price of 5 cassettes. Find the gain per cent.

Answer

Let × be the price of a cassette.

Selling Price of 5 cassettes = 5x.

Selling Price of 130 cassettes = 130x.

Cost Price of 130 cassettes = 130 × – 5x

= 125x

Gain = SP - CP

= 130 × – 125x

= 5x

$$Gain\% = \frac{Gain \times 100}{CP}$$

$$= \frac{5x \times 100}{125x}$$

$$= \frac{500x}{125x}$$

= 4%

11. Question

By selling 45 lemons, a vendor loses a sum equal to the selling price of 3 lemons. Find his loss per cent.

Answer

Let × be the price of a lemons.

Selling Price of 3 lemons = 3x.

Selling Price of 45 lemons = 45x.

Cost Price of 45 lemons = 45 × + 3x

= 48x

Loss = CP - SP

= 48 × – 45x

= 3x

$$Loss\% = \frac{Loss \times 100}{CP}$$

$$= \frac{3x \times 100}{48x}$$

$$= \frac{300x}{48x}$$

= 6.25%

12. Question

Oranges are bought at 6 for Rs.20 and sold at 4 for Rs.18. Find the gain or loss per cent.

Answer

CP of 6 oranges = Rs.20

CP of 1 orange = Rs. 20/6

SP of 4 oranges = Rs.18

SP of 1 orange = Rs. 18/4

Gain = SP –CP

$$= \frac{18}{4} - \frac{20}{6}$$
$$= \frac{54-40}{12}$$
$$= \frac{7}{6}$$

$$Gain\% = \frac{Gain \times 100}{CP}$$

$$= \frac{\frac{7}{6} \times 100}{\frac{20}{6}}$$
$$= \frac{\frac{700}{6}}{\frac{20}{6}}$$

= 35%

13. Question

A vendor purchased bananas at Rs.40 per dozen and sold them at 10 for Rs. 36. Find his gain or loss per cent.

Answer

SP of 1 Banana = 36/10

= Rs.3.6

SP of 1 Dozen Banana = 3.6 × 12

= Rs.43.20

CP of 1 Dozen Banana = Rs.40

Gain = SP – CP

= 43.20 – 40

=3.2

$$Gain\% = \frac{Gain \times 100}{CP}$$

$$= \frac{3.2 \times 100}{40}$$

= 8%

14. Question

A man bought apples at 10 for Rs. 75 and sold them at Rs.75 per dozen. Find his loss per cent.

Answer

CP of 1 Apple = 75/10

= Rs.7.5

CP of 1 Dozen Apple = 7.5 × 12

= Rs.90

SP of 1 Dozen Apple = Rs.75

Loss = CP – SP

= 90 - 75

= 15

$$Loss\% = \frac{Loss \times 100}{CP}$$

$$= \frac{15 \times 100}{90}$$

= 16.66%

15. Question

A man purchased some eggs at Rs.3 for 16 and sold them at Rs.5 for 36. Thus, he gained Rs.168 in all. How many eggs did he purchase?

Answer

Let the numbers of egg is x.

CP of egg = Rs.16x/3

SP of egg = Rs.36x/5

Gain = SP - CP

$$= \left(\frac{36x}{5} - \frac{16x}{3} \right) = 168$$

$$= \left(\frac{36x}{5} - \frac{16x}{3} \right)$$

$$= \frac{108x - 80x}{15} = 168$$

$$\therefore 28x = 168 \times 15$$

$$\therefore x = \frac{2520}{28} = 90$$

So, the numbers of egg are 90.

16. Question

A dealer sold a camera for Rs. 1080 gaining $\frac{1}{8}$ of its cost price. Find (i) the cost price of the camera, and (ii) the gain per cent earned by the dealer.

Hint. Let CP = Rs. x. Then, gain = Rs. $\frac{x}{8}$ Therefore, SP=Rs. $\left(x+\frac{x}{8}\right)$ =Rs. $\frac{9x}{8}$

Answer

(i) Let × be the CP of Camera.

SP of Camera = x + 1x/8 = 1080

× + x/8 = 1080

9x/8 = 1080

x= (1080 × 8) / 9

= 960.

So, the Cost Price (CP) of camera is Rs.960.

(ii) Gain = SP – CP

= 1080 – 960

= 120

$$Gain\% = \frac{Gain \times 100}{CP}$$

$$= \frac{120 \times 100}{960}$$

= 12.5%

17. Question

Meenakshi sells a pen for Rs.54 and loses $\frac{1}{10}$ of her outlay. Find (i) the cost price of the pen, and (ii) the loss per cent.

Answer

(i) Let × be the CP of Pen.

SP of Pen = x- 1x/10 = 54

X- X/10 = 54

9x/10 = 54

X= (54 × 10) / 9

= 60.

So, the Cost Price (CP) of Pen is Rs.60.

(ii) Loss = CP – SP

= 60 – 54

= 6

$$Loss\% = \frac{Loss \times 100}{CP}$$

$$= \frac{6 \times 100}{60}$$

= 10%

18. Question

A dealer gets Rs.940 more if instead of selling a table at a loss of 10%, it is sold at a gain of 10%. Find the cost price of the table.

Answer

Let × be the CP.

In case of 10% loss, SP will be (x-x/10) = 9x/10

In case of 10% profit, SP will be (× + x/10) = 11x/10

Difference when item is sold between profit and loss = Rs.940

11x/10 – 9x/10 = 940

2x/10 = 940

× = (940 × 10) / 2

= Rs.4700

So, Cost Price of table is Rs.4700.

19. Question

A dealer gets 56 less if instead of selling a chair at a gain of 15%, it is sold at a gain of 8%. Find the cost price of the chair.

Answer

Let × be the Cost Price of Chair.

SP when chair is sold at gain of 15% = × + 15x/100 = 115x/100

SP when chair is sold at gain of 8% = × + 8x/100 = 108x/100

115x/100 – 108x/100 = 56

7x/100 = 56

× = (56 × 100)/7

= 800

So, the cost price of Chair is Rs.800

20. Question

A cycle was sold at a gain of 10%. Had it been sold for Rs.260 more, the gain would have been 14%. Find the cost price of the cycle.

Answer

Let × be the Cost Price of Cycle.

SP when cycle is sold at gain of 14% = × + 14x/100 = 114x/100

SP when cycle is sold at gain of 10% = × + 10x/100 = 110x/100

114x/100 – 110x/100 = 260

4x/100 = 260

× = (260 × 100)/4

= 6500

So, the cost price of Cycle is Rs.6500

21. Question

Sonu buys 40 kg of wheat at Rs.12.50 per kg and 30 kg of wheat at Rs.14 per kg. At what rate per kg should he sell the mixture to gain 5% on the whole?

Answer

CP of total wheat = 40 × 12.50 + 30 × 14

= 500 + 420

= Rs.920

Total Weight of Wheat = 40 kg + 30 kg

= 70 kg

$$SP = \frac{100 + Gain\%}{100} \times CP$$

$$SP = \frac{100 + 5}{100} \times 920$$

= Rs.966

So, to gain 5% on wheat SP will be Rs.966

Rate for 1 kg wheat = 966/70

= Rs.13.80

22. Question

Wasim bought two cricket bats for Rs. 840 and Rs.360 respectively. He sells the first bat at a gain of 15% and the second one at a loss of 5%. Find his gain or loss per cent in the whole transaction.

Answer

CP of first bat = Rs.840

SP of first bat $= \frac{100+Gain\%}{100} \times CP$

$= \frac{100+15}{100} \times 840$

= (115 × 840) /100

= Rs.966

CP of second bat = Rs.360

SP of second bat

$= \frac{100-Loss\%}{100} \times CP$

$= \frac{100-5}{100} \times 360$

= Rs.342

CP of both the bat = 840 + 360

= Rs.1200

SP of both bats = 966 + 342

= Rs.1308

It is a case of Gain because SP is more than CP.

Gain = SP – CP

= 1308 - 1200

= Rs108

$Gain\% = \frac{Gain \times 100}{CP}$

$= \frac{108 \times 100}{1200}$

= 9%

23. Question

Hema bought two pairs of jeans for Rs.1450 each. She sold one of them at a gain of 8% and the other at a loss of 4%. Find her gain or loss per cent in the whole transaction.

Answer

CP of first jeans = Rs.1450

SP of first jeans $= \frac{100+Gain\%}{100} \times CP$

$= \frac{100+8}{100} \times 1450$

$= \frac{108 \times 1450}{100}$

= Rs.1566

CP of second jeans = Rs.1450

SP of second jeans $= \frac{100-Loss\%}{100} \times CP$

$= \frac{100-4}{100} \times 1450$

$= \frac{96}{100} \times 1450$

= Rs.1392

CP of both the bat = 1450 + 1450

= Rs.2900

SP of both bats = 1566 + 1392

= Rs.2958

It is a case of Gain because SP is more than CP.

Gain = SP – CP

=2958 - 2900

= Rs58

$Gain\% = \frac{Gain \times 100}{CP}$

$= \frac{58 \times 100}{2900}$

= 2%

24. Question

A grocer purchased 200 kg of rice at Rs.25 per kg. He sold 80 kg of it at a gain of 10% and 40 kg at a loss of 4%. At what rate per kg should he sell the remainder to gain 8% on his total investment?

Answer

CP of 200kg Rice = 200 × 25

= Rs.5000

CP 0f 80 kg Rice = 80 × 25

= Rs.2000

SP of 80Kg rice sold at gain of 10%

$$=\frac{100+Gain\%}{100}\times CP$$

$$=\frac{100+10}{100}\times 2000$$

$$=\frac{110}{100}\times 2000$$

= Rs.2200

CP of 40 kg Rice sold @4% loss = 40 × 25

= Rs.1000

SP of 40 Kg Rice sold @4% loss $=\frac{100-Loss\%}{100}\times CP$

$$=\frac{100-4}{100}\times 1000$$

= Rs.960

SP of Rice for Gaining 8% on total value

$$=\frac{100+Gain\%}{100}\times CP$$

$$=\frac{100+8}{100}\times 5000$$

$$=\frac{108}{100}\times 5000$$

= Rs.5400

Total Wt. of Rice Sold = 80 + 40 = 120 Kg

Remaining Wt. of Rice to be Sold

= 200 - 120

= 80 Kg

Total amount obtained from Selling Rice

= 2200 + 960

= Rs.3160

Difference of Amount = 5400 – 3160

= Rs.2240

New Rate of Rice will be = Rs.2240 / 80

= Rs.28

25. Question

If the selling price of a TV set is equal to $\frac{6}{5}$ of its cost price, find the gain per cent.

Hint. Let CP be x. Then, SP =Rs. $\frac{6x}{5}$

Answer

Let × be the CP of TV Set

CP = x

SP = (x) × 6/5

= 6x/5

Gain = SP –CP

= 6x/5 – x

= x/5

$$Gain\% = \frac{Gain \times 100}{CP}$$

= (x/5 × 100) / x

= 20%

So, If TV set is sold at 6/5 price of its CP. Then Gain percent will be 20%.

26. Question

If the selling price of a flower vase is $\frac{5}{6}$ of its cost price, find the loss per cent.

Answer

Let × be the CP of Flower Vase

CP = x

SP = (x) × 5/6

= 5x/6

Loss = CP –SP

= × – 5x/6

= x/6

Loss Percent = (Loss × 100) / CP

= (x/6 × 100) / x

= 100/6

= 16.66%

So, If Flower vase set is sold at 5/6 price of its CP. Then Loss percent will be 16.66%.

27. Question

By selling a bouquet for Rs.322, a florist gains 15%. At what price should he sell it to gain 25%?

Answer

Let × be the CP of bouquet.

SP = Rs.322

$$SP = \frac{100+Gain\%}{100} \times CP$$

$$322 = \frac{100+15}{100} \times x$$

$$322 = \frac{115x}{100}$$

$$x = \frac{322 \times 100}{115}$$

= 280

CP of bouquet = Rs.280

Now, to sell bouquet on25% gain, Selling Price will be

$$SP = \frac{100+Gain\%}{100} \times CP$$

$$= \frac{100+25}{100} \times 280$$

$$= \frac{125}{100} \times 280$$

= Rs.350

28. Question

By selling an umbrella for Rs.336, a shopkeeper loses 4%. At what price must he sell it to gain 4%?

Answer

Let x be the CP of an umbrella

$$\text{SP} = \frac{100 - Loss\%}{100} \times CP$$

$$336 = \frac{100 - 4}{100} \times x$$

$$336 = \frac{96x}{100}$$

=Rs.350

So, CP of an umbrella is Rs.350.

New SP to gain 4%

$$\text{SP} = \frac{100 + Gain\%}{100} \times CP$$

$$= \frac{100 + 4}{100} \times 350$$

$$= \frac{104}{100} \times 350$$

= Rs.364

So, to gain 4% on Umbrella new Selling Price will be Rs.364.

29. Question

A radio is sold for Rs.3120 at a loss of 4%. What will be the gain or loss per cent if it is sold for Rs.3445?

Answer

Let × be the CP of a Radio

$$\text{SP} = \frac{100 - Loss\%}{100} \times CP$$

$$3120 = \frac{100 - 4}{100} \times x$$

$$3120 = \frac{96x}{100}$$

$$x = \frac{3120 \times 100}{96}$$

So, CP of a Radio is Rs.3250.

New SP = Rs.3445

Since SP > CP, it will be a case of Gain

Gain = SP – CP

= 3445 – 3250

= Rs.195

$$Gain\% = \frac{Gain \times 100}{CP}$$

= (195 × 100) / 3250

= 6%

So, if Radio is sold at Rs.3445. Gain Percent will be 6%.

30. Question

Lwani sold two sarees for Rs.1980 each. On one, she lost 10%, while on the other she gained 10%. Find her gain or loss per cent in the whole transaction.

Answer

S.P of each sarees = Rs. 1980

1st Saree:

S.P = Rs. 1980

Gain = 10%

Let C.P = x

Therefore,

$$x + \frac{10}{100} \times x = 1980$$

$$\frac{110x}{100} = 1980$$

$$x = \frac{1980 \times 100}{110}$$

x = Rs. 1800

2nd Saree:

S.P = Rs. 1980

Loss = 10%

Let the C.P = x

Therefore,

$$x - \frac{10}{100} \times x = 1980$$

$$\frac{90x}{100} = 1980$$

$$x = \frac{1980 \times 100}{90}$$

x = Rs. 2200

Now, total S.P = 1980 + 1980 = Rs. 3960

Total C.P = 2200 + 1800 = Rs.. 4000

Total Loss = C.P - S.P = 4000 - 3960 = Rs. 40

Also,

$$Loss\ \% = \frac{Loss}{C.P} \times 100$$

$$Loss\ \% = \frac{40}{4000} \times 100 = 1\%$$

31. Question

A shopkeeper sold two fans for Rs. 1140 each. On one he gains 14%, while on the other he loses 5%. Calculate his gain or loss per cent in the whole transaction.

Answer

SP of first fan = Rs.1140

C.P of first fan $= \frac{S.P \times 100}{(100 + Gain\%)}$

$$C.P = \frac{1140 \times 100}{(100 + 14)} = Rs.1000$$

= Rs.1000

SP of second fan = Rs.1140

C.P of second fan,

$$= \frac{S.P \times 100}{(100 - Loss\%)}$$

$$C.P = \frac{1140 \times 100}{(100 - 5)} = \frac{1140 \times 100}{95} = 1200$$

= Rs. 1200

SP of both fans = 1140 + 1140

= Rs.2280

CP of both fans = 1000 + 1200

= Rs.2200

It is a case of Gain because SP is more than CP.

Gain = SP – CP

=2280 - 2200

= Rs80

$$Gain\% = \frac{Gain \times 100}{CP}$$

= (80 × 100) / 2200

= 3.64%

32. Question

Vinod sold a watch to Arun at a gain of 12% and Arun had to sell it to Manoj at a loss of 5%. If Manoj paid Rs.3990 for it, how much did Vinod pay for the watch?

Answer

Arun sold watch to Manoj at 5% loss at Rs.3990

$$CP = \frac{100}{100 - Loss\%} \times SP$$
$$= \frac{100}{100 - 5} \times 3990$$

= Rs.4200

So, Cost Price of watch for Arun is Rs.4200

Vinod sold watch to Arun 12% gain

$$CP = \frac{100}{100 + Gain\%} \times SP$$
$$= \frac{100}{100 + 12} \times 4200$$
$$= \frac{100}{112} \times 4200$$

= Rs.3750

So, Vinod paid Rs.3750 for a watch.

33. Question

Ahmed buys a plot of land for Rs. 480000. He sells $\frac{2}{5}$ of it at a loss of 6%. At what gain per cent should he sell the remaining part of the plot to gain 10% on the whole?

Answer

CP of plot = Rs.480000

SP of plot to gain 10%

SP = $= \frac{100+Gain\%}{100} \times CP$

= ((100 + 10) /100) × 480000

= Rs.528000

CP for 2/5 area of plot = 480000 × 2/5

= Rs.192000

SP of 2/5 area of plot will be

SP = ((100 – Loss %)/100) × CP

= ((100 - 6) / 100) × 192000

= Rs.180480

Difference between both the Selling Prices

= 528000 – 180480

= Rs.347520

CP for 3/5 land = 480000 – 192000

= Rs.288000

SP for 3/5 land = Rs.347520

Gain = SP - CP

= 347520 – 288000

= Rs.59520

$Gain\% = \frac{Gain \times 100}{CP}$

= (59520 × 100) / 288000

= 20.66%

So, to gain 10% on whole remaining land should be sold at 20.66%.

34. Question

A grocer bought sugar worth of Rs.4500. He sold one-third of it at a gain of 10%. At what gain per cent must the remaining sugar be sold to have a gain of 12% on the whole?

Answer

CP of sugar = Rs.4500

SP of sugar to gain 12% on whole

SP $= \frac{100+Gain\%}{100} \times CP$

$= \frac{100+12}{100} \times 4500$

= Rs.5040

CP for 1/3 of sugar = 4500 × 1/3

= Rs.1500

SP of 1/3 of sugar will be

SP = $= \frac{100+Gain\%}{100} \times CP$

$= \frac{100+10}{100} \times 1500$

= Rs.1650

Difference between both the Selling Prices

= 5040 – 1650

= Rs.3390

CP for remaining 2/3 sugar = 4500 – 1500

= Rs.3000

SP for 2/3 sugar = Rs.3390

Gain = SP - CP

= 3390 – 3000

= Rs.390

$Gain\% = \frac{Gain \times 100}{CP}$

$= \frac{390 \times 100}{3000}$

= 13%

So, to gain 12% on whole remaining sugar should be sold at 13%.

Exercise 10B

1. Question

The marked price of a water cooler is Rs. 4650. The shopkeeper offers an off-season discount of 18% on it. Find its selling price.

Answer

Market Price = Rs.4650

Discount = 18%

Discount in Amount = (18% of Market Price)

$$= \frac{18}{100} \times 4650$$

= Rs.837

Selling Price = Market Price – Discount

= 4650 – 837

=Rs.3813

2. Question

The price of a sweater was slashed from Rs. 960 to Rs. 816 by a shopkeeper in the winter season. Find the rate of discount given by him.

Answer

Market Price = Rs.960

Selling Price = Rs.816

Discount = Market Price – Selling Price

= 960 - 816

=Rs.144

Discount % = (Discount/Market Price) × 100

= (144/960) × 100

= 15%

3. Question

Find the rate of discount being given on a shirt whose selling price is Rs. 1092 after deducting a discount of Rs. 208 on its marked price. Hint. MP = (SP) + (discount).

Answer

Selling Price = Rs.1092

Discount = Rs.208

Market Price = Selling Price + Discount

= 1092 + 208

= Rs.1300

Discount % = (Discount/Market Price) × 100

= (208/1300) × 100

= 16%

4. Question

After allowing a discount of 8% on a toy, it is sold for Rs. 216.20. Find the marked price of the toy.

Answer

Discount =8%

Selling Price = Rs.216.20

Let y be the Market Price of Toy.

Market Price – Discount = Selling Price

$$y-\left(y\times\frac{8}{100}\right)=216.20$$

$$=\frac{100y-8y}{100}=216.20$$

$$=\frac{92y}{100}=216.20$$

$$y=\frac{216.20\times100}{92}$$

= Rs.235

Market Price of toy is Rs.235.

5. Question

A tea set was bought for Rs.528 after getting a discount of 12% on its marked price. Find the marked price of the tea set.

Answer

Selling Price = Rs.528

Discount = 12%

Let y be the Market Price of Tea Set.

Market Price – Discount = Selling Price

$$y-\left(y\times\frac{12}{100}\right)=528$$

$$\frac{88y}{100}=528$$

$$y=\frac{528\times100}{88}$$

= Rs.600

So, Market Price of tea set is Rs.600.

6. Question

A dealer marks his goods at 35% above the cost price and allows a discount of 20% on the marked price. Find his gain or loss per cent.

Answer

Let × be the CP of the goods.

Market Price of the goods when goods is marked above 35% of CP

Market Price = × + (35x/100)

= 135x/100

Discount Offered = 20%

Discounted Amount = 20% of 135x/100

= 27x/100

Selling Price = Market Price – Discount

= (135x/100) – (27x/100)

=108x/100

=1.08x

Since SP is more than CP, it is a case of Gain.

Gain = SP – CP

= 1.08x– x

= 0.08x

$$Gain\% = \frac{Gain \times 100}{CP}$$

$$= \frac{0.08x}{x} \times 100$$

= 8%

7. Question

A cellphone was marked at 40% above the cost price and a discount of 30% was given on its marked price. Find the gain or loss per cent made by the shopkeeper.

Answer

Let × be the CP of the cellphone.

Market Price of the goods when goods is marked above 40% of CP

Market Price = × + (40x/100)

= 140x/100

=1.4x

Discount Offered = 30%

Discounted Amount = 30% of 1.40x

= 0.42x

Selling Price = Market Price – Discount

= 1.4 × – 0.42x

=0.98x

Since CP is more than SP, it is a case of Loss.

Loss = CP – SP

= × – 0.98x

= 0.02x

$$Loss\% = \frac{Loss \times 100}{CP}$$

$$= \frac{0.02x}{x} \times 100$$

= 2%

8. Question

A dealer purchased a fan for Rs. 1080. After allowing a discount of 25% on its marked price, he gains 25%. Find the marked price of the fan.

Answer

Cost Price = Rs.1080

Gain = 25%

$$\text{Selling Price} = \frac{100 + Gain\%}{100} \times CP$$

$$= \frac{100 + 25}{100} \times 1080$$

= Rs.1350

Discount = 25%

Let × be the market price.

Market Price – Discount = Selling Price

× – 25% of × = 1350

× – 25x/100 = 1350

75x/100 = 1350

X= (1350 × 100) / 75

= Rs.1800

So, Market Price of Fan is Rs.1800

9. Question

A dealer bought a refrigerator for Rs. 11515. After allowing a discount of 16% on its marked price, he gains 20%. Find the marked price of the refrigerator.

Answer

Cost Price = Rs.11515

Gain = 20%

Selling Price = $= \frac{100+Gain\%}{100} \times CP$

$= \frac{100+20}{100} \times 11515$

= Rs.13818

Discount = 16%

Let × be the market price.

Market Price – Discount = Selling Price

× – 16% of × = 13818

× – 16x/100 = 13818

84x/100 = 13818

X= (13818 × 100) / 84

= Rs.16450

So, Market Price of refrigerator is Rs.16450

10. Question

A jeweller allows a discount of 16% to his customers and still gains 20%. Find the marked price of a ring which costs the jeweller Rs. 1190.

Answer

Cost Price = Rs.1190

Gain = 20%

Selling Price $= \frac{100+Gain\%}{100} \times CP$

$= \frac{100+20}{100} \times 1190$

= Rs.1428

Discount = 16%

Let × be the market price.

Market Price – Discount = Selling Price

× – 16% of × = 1428

× – 16x/100 = 1428

84x/100 = 1428

X= (1428 × 100) / 84

= Rs.1700

So, Market Price of ring is Rs.1700

11. Question

After allowing a discount of 10% on the marked price, a trader still makes a gain of 17%. By what per cent is the marked price above the cost price?

Answer

Let’s assume Cost Price of Product to be Rs.100.

Given he gains 17% on selling price would be

Selling Price = (100 + 17% of 100) = Rs.117

Discount = 10%

Let × be the marked price.

Market Price – Discount = Selling Price

x- (10% of x) = 117

× – x/10 = 117

9x/10 = 117

× = 130

Cost price is 100

Selling price is 117

Marked price is 130

So, Market Price is 30% above Cost Price.

12. Question

How much per cent above the cost price should a shopkeeper mark his goods so that after allowing a discount of 10% on the marked price, he gains 8%?

Answer

Let’s assume Cost Price of Product to be Rs.100.

Given he gains 8% on selling price would be

Selling Price = (100 + 8% of 100) = Rs.108

Discount = 10%

Let × be the marked price.

Market Price – Discount = Selling Price

x- (10% of x) = 108

× – x/10 = 108

9x/10 = 108

× = 120

Cost price is 100

Selling price is 108

Marked price is 120

So, Market Price is 20% above Cost Price.

13. Question

The marked price of a TV is Rs. 18500. A dealer allows two successive discounts of 20% and 5%. For how much is the TV available?

Answer

Market Price = Rs.18500

First Discount = 20%

Second Discount = 5%

The formula for total discount in case of successive discounts:If the first discount is x% and 2nd discount is y% then,

Total Discount =

$$\left[(x+y)-\frac{xy}{100}\right]\%$$

$$\left[(20+5)-\frac{20\times 5}{100}\right]\%$$

$$\left(25-\frac{100}{100}\right)\%$$

= 24%

Discount = (24% of Rs.18500)

= Rs.4440

Selling Price = Market Price – Discount

= 18500 – 4440

= Rs.14060

14. Question

Find the single discount which is equivalent to two successive discounts of 20% and 5%.

Answer

First Discount = 20%

Second Discount = 5%

The formula for total discount in case of successive discounts:If the first discount is x% and 2nd discount is y% then,

Total Discount=

$$\left[(x+y)-\frac{xy}{100}\right]\%$$

$$\left[(20+5)-\frac{20\times 5}{100}\right]\%$$

$$\left(25-\frac{100}{100}\right)\%$$

= 24%

Exercise 10C

1. Question

The list price of a refrigerator is Rs. 14650. If 6% is charged as sales tax, find the cost of the refrigerator.

Answer

List Price = Rs14650

Sales Ta × = 6%

Sales Ta × Amount = 6% of Rs14650

=6% × 14650

=Rs879

Final Price = List Price + Sales Tax

= 14650 + 879

= Rs.15529

2. Question

Reena bought the following articles from a general store:

(i) 1 tie costing Rs. 250 with ST @ 6%

(ii) Medicines costing Rs. 625 with ST @ 4%

(iii) Cosmetics costing Rs. 430 with ST @ 10%

(iv) Clothes costing Z 1175 with ST @ 8%

Calculate the total amount to be paid by Reena

Answer

Cost of Tie = Rs.250

ST on Tie = 6%

ST Amount on Tie = 6% of Rs250

= 15

Final Cost of Tie = 250 + 15 = Rs.265

Cost of Medicine = Rs.625

ST on Medicine = 4%

ST Amount on Medicine = 4% of Rs.625

= Rs.25

Final Cost of Medicine = 625 + 25 = Rs.650

Cost of Cosmetic = Rs.430

ST on Cosmetic = 10%

ST Amount on Cosmetic = 10% of Rs.430

= Rs.43

Final Cost of Medicine = 430 + 43 = Rs.473

Cost of Clothes = Rs.1175

ST on Clothes = 8%

ST Amount on Medicine = 8% of Rs.1175

= Rs.94

Final Cost of Medicine = 1175 + 94 = Rs.1269

So, Total Amount to be paid by Reena = Rs.265 + Rs.650 + Rs.473 + Rs.1269

= Rs.2657

3. Question

Tanvy bought a watch for Rs.1980 including VAT at 10%. Find the original price of the watch.

Answer

VAT = 10%

Selling Price = Rs.1980

Let × be the original price of watch.

VAT Amount = 10% of x

=x/10

× + x/10 = 1980

11x/10 = 1980

X= (1980 × 10) / 11

= Rs.1800

So, Original Price of Watch excluding VAT is Rs.1800.

4. Question

Mohit bought a shirt for Rs. 1337.50 including VAT at 7%. Find the original price of the shirt.

Answer

VAT = 7%

Selling Price = Rs.1337.50

Let × be the original price of watch.

VAT Amount = 7% of x

=7x/100

× + 7x/100 = 1337.50

107x/100 = 1337.50

X= (1337.50 × 100) / 107

= Rs.1250

So, Original Price of Shirt excluding VAT is Rs.1250.

5. Question

Karuna bought 10 g of gold for Rs. 15756 including VAT at 1%. What is the rate of gold per 10 g?

Answer

VAT = 1%

Selling Price = Rs.15756

Let × be the original price of watch.

VAT Amount = 1% of x

=x/100

× + x/100 = 15756

101x/100 = 15756

X= (15756 × 100) / 101

= Rs.15600

So, Original Price of 10gm Gold excluding VAT is Rs.15600.

6. Question

Mohini purchased a computer for Rs. 37960 including VAT at 4%. What is the original price of the computer?

Answer

VAT = 4%

Selling Price = Rs.37960

Let × be the original price of watch.

VAT Amount = 4% of x

=4x/100

× + 4x/100 = 37960

104x/100 = 37960

X= (37960 × 100) / 104

= Rs.36500

So, Original Price of Computer excluding VAT is Rs.36500.

7. Question

Sajal purchased some car parts for rs. 20776 including VAT at 12%. What is the original cost of these spare parts?

Answer

VAT = 12%

Selling Price = Rs.20776

Let × be the original price of watch.

VAT Amount = 12% of x

=12x/100

× + 12x/100 = 20776

112x/100 = 20776

X= (20776 × 100) / 112

= Rs.18550

So, Original Price of parts of Car excluding VAT is Rs.18550.

8. Question

The sale price of a TV set including VAT is Rs. 27000. If the VAT is charged at 8% of the list price, what is the list price of the TV set?

Answer

VAT = 8%

Selling Price = Rs.27000

Let × be the original price of watch.

VAT Amount = 8% of x

=8x/100

× + 8x/100 = 27000

108x/100 = 27000

X= (27000 × 100) / 108

= Rs.25000

So, Original Price of TV Set excluding VAT is Rs.25000.

9. Question

Rohit purchased a pair of shoes for Rs. 882 inclusive of VAT. If the original cost be Rs. 840, find the rate of VAT.

Answer

Selling Price = Rs.882

Original Price = Rs.840

VAT Amount = 882- 840

= Rs.42

VAT % = (VAT Amount/Original Price) × 100

= (42/840) × 100

= 5%

So, Rate of VAT is 5%

10. Question

Malti bought a VCR for Rs. 19980 including VAT. If the original price of VCR be Rs. 18500, find the rate of VAT.

Answer

Selling Price = Rs.19980

Original Price = Rs.18500

VAT Amount = 19980- 18500

= Rs.1480

VAT % = (VAT Amount/Original Price) × 100

= (1480/18500) × 100

= 8%

So, Rate of VAT is 8%

11. Question

The value of a car including VAT is Rs. 382500. If the basic price of the car be Rs. 340000, find the rate of VAT on cars.

Answer

Selling Price = Rs.382500

Original Price = Rs.340000

VAT Amount = 382500- 340000

= Rs.42500

VAT % = (VAT Amount/Original Price) × 100

= (42500/340000) × 100

= 12.5%

So, Rate of VAT on Car is 12.5%

Exercise 10D

1. Question

Rajan buys a toy for Rs. 75 and sells it for Rs. 100. His gain per cent is

A. 25%

B. 20%1

C. $33\frac{1}{3}\%$

D. $37\frac{1}{2}\%$

Answer

CP = Rs.75

SP = Rs.100

Gain = SP – CP

= 100 -75

= Rs.25

Gain Percent = $Gain\% = \frac{Gain \times 100}{CP}$

$= \frac{25 \times 100}{75}$

=33.33%

2. Question

A bat is bought for Rs. 120 and sold for Rs.105. The loss per cent is

A. 15%

B. $12\frac{1}{2}\%$

C. $16\frac{2}{3}\%$

D. 141%

Answer

CP = Rs.120

SP = Rs.105

Loss = CP – SP

= 120 -105

= Rs.15

$$Loss\% = \frac{Loss \times 100}{CP}$$

$$= \frac{15 \times 100}{120}$$

=12.5%

3. Question

A bookseller sells a book for Rs. 100, gaining Rs. 20. His gain per cent is

A. 20%

B. 25%

C. 22%

D. none of these

Answer

SP = Rs.100

Gain = Rs.20

CP = SP – Gain

= 100 -20

= Rs.80

$$Gain\% = \frac{Gain \times 100}{CP}$$

$$= \frac{20 \times 100}{80}$$

=25%

4. Question

On selling an article for Rs.48, a shopkeeper loses 20%. In order to gain 20%, what would be the selling price?

A. Rs. 52

B. Rs. 56

C. Rs. 68

D. Rs. 72

Answer

SP = Rs.48

Loss Percent = 20%

$$CP = \frac{100}{100 - Loss\%} \times SP$$

$$= \frac{100}{100 - 20} \times 48$$

$$= \frac{100}{80} \times 48$$

= Rs.60

$$SP = \frac{100 + Gain\%}{100} \times CP$$

$$= \frac{100 + 20}{100} \times 60$$

$$= \frac{120}{100} \times 60$$

= Rs.72

5. Question

On selling an article at a certain price a man gains 10%. On selling the same article at double the price, gain per cent is

A. 20%

B. 100%

C. 120%

D. 140%

Answer

Let the cost price be Rs.100

Gain = 10%

$$SP = \frac{100 + Gain\%}{100} \times CP$$

$$= \frac{100 + 10}{100} \times 100$$

= Rs.110

Now, according to question make the selling price double

= 110 × 2

= Rs.220

Now, Gain will be

= 220 – 100

= Rs.120

$$Gain\% = \frac{Gain \times 100}{CP}$$

$$= \frac{120 \times 100}{100}$$

= 120%

6. Question

Bananas are bought at 3 for Rs.2 and sold at 2 for Rs. 3. The gain per cent is

A. 25%

B. 50%

C. 75%

D. 125%

Hint. Suppose 6 bananas are bought. Then, CP = 4 and SP = 9

Answer

CP for 3 Bananas = Rs.2

CP for 1 Banana = Rs.2/3

SP for 2 Bananas = Rs.3

SP for 1 Banana = Rs.3/2

Gain = SP – CP

= 3/2 – 2/3

=5/6

$$Gain\% = \frac{Gain \times 100}{CP}$$

$$= \frac{\frac{5}{6} \times 100}{\frac{2}{3}}$$

= 5/4 × 100

= 125%

7. Question

If the selling price of 10 pens is the same as the cost price of 12 pens then gain per cent is

A. 2%

B. 12%

C. 20%

D. 25%

Answer

Let × be the CP of Pen

SP of 1 pen = x/10

CP of 1 Pen = x/12

Gain = SP –CP

= x/10 – x/12

=x/60

$$Gain\% = \frac{Gain \times 100}{CP}$$

$$= \frac{\frac{x}{60} \times 100}{\frac{x}{12}}$$

= 20%

8. Question

On selling 100 pencils a man gains the selling price of 20 pencils. His gain per cent is

A. 20%

B. 25%

C. $22\frac{1}{2}\%$

D. $16\frac{2}{3}\%$

Answer

Let × be the CP of pencil

SP of 100 pencils = 100x

Gain of 20 Pencils = 20x

CP = SP - Gain

= 100 × – 20x

= 80x

$$Gain\% = \frac{Gain \times 100}{CP}$$

$$= \frac{20x \times 100}{80x}$$

= 25%

9. Question

Ravi buys some toffees at 5 for a rupee and sells them at 2 for a rupee. His gain per cent is

A. 30%

B. 40%

C. 50%

D. 150%

Answer

Cost Price of 1 toffee=Rs.1/5

Selling Price of 1 toffee=Rs.1/2

Gain = SP – CP

= 1/2 - 1/5

= 3/10

$$Gain\% = \frac{Gain \times 100}{CP}$$

$$= \frac{\frac{3}{10} \times 100}{\frac{1}{5}}$$

= 150%

10. Question

Oranges are bought at 5 for Rs. 10 and sold at 6 for Rs.15. His gain per cent is

A. 50%

B. 40%

C. 35%

D. 25%

Answer

Cost Price of 1 Orange =Rs.10/5 = Rs.2

Selling Price of 1 Orange =Rs.15/6 = Rs.2.5

Gain = SP – CP

= 2.5 - 2

= 0.5

Gain Percent = $Gain\% = \frac{Gain \times 100}{CP}$

= (0.5 × 100) / 2

= 25%

11. Question

By selling a radio for Rs. 950, a man loses 5%. What per cent shall he gain by selling it for Rs. 1040?

A. 4%

B. 4.5%

C. 5%

D. 9%

Answer

SP = Rs.950

Loss % = 5

$$CP = \frac{100}{100 - Loss\%} \times SP$$

$$= \frac{100}{100 - 5} \times 950$$

= Rs.1000

New SP will be Rs.1040

Gain = SP - CP

= 1040 – 1000

= Rs.40

$$Gain\% = \frac{Gain \times 100}{CP}$$

= (40 × 100) / 1000

= 4%

12. Question

The selling price of an article is $\frac{6}{5}$ of the cost price. The gain per cent is

A. 20%

B. 25%

C. 30%

D. 120%

Answer

Let × be the CP

SP = 6x/5

Gain = SP –CP

= 6x/5 – x

=x/5

$$Gain\% = \frac{Gain \times 100}{CP}$$

$$= \frac{\frac{x}{5} \times 100}{x}$$

= 20%

13. Question

On selling a chair forRs. 720, a man loses 25%. To gain 25% it must be sold for

A. Rs.900

B. Rs.1200

C. Rs.1080

D. Rs.1440

Answer

SP = Rs.720

Loss % = 25

$$CP = \frac{100}{100 - Loss\%} \times SP$$

$$= \frac{100}{100 - 25} \times 720$$

= Rs.960

$$SP = \frac{100 + Gain\%}{100} \times CP$$

$$= \frac{100 + 25}{100} \times 960$$

= Rs.1200

14. Question

The ratio of cost price and selling price of an article is 20 : 21. What is the gain per cent on it?

A. 5%

B. $5\ \frac{1}{2}$ %

C. 6%

D. $6\frac{1}{4}$ %

Answer

Let × be the common multiple

CP = 20x

SP = 21x

Gain = SP – CP

= 21 × – 20x

= x

Gain Percent = $Gain\% = \frac{Gain \times 100}{CP}$

$$= \frac{x \times 100}{20x}$$

= 5%

15. Question

A man sold two chairs for Rs.500 each. On one he gains 20% and on the other he loses 12%. His net gain or loss per cent is

A. 1.5% gain

B. 2% gain

C. 1.5% loss

D. 2% loss

Answer

SP of first chair = Rs.500

CP of first chair

$$= \frac{100}{100 + Gain\%} \times SP$$
$$= \frac{100}{100 + 20} \times 500$$
$$= \frac{100}{120} \times 500$$

= Rs.416.66

SP of second chair = Rs.500

SP of second chair

$$= \frac{100}{100 - Loss\%} \times SP$$
$$= \frac{100}{100 - 12} \times 500$$

= Rs.568.18

CP of both chairs = 500 + 500

= Rs.1000

SP of both chairs = 568.18 + 416.66

= Rs.984.84

It is a case of Loss because CP is more than SP.

Loss = CP – SP

=1000 – 984.84

= Rs15.16

$$Loss\% = \frac{Loss \times 100}{CP}$$
$$= \frac{15.16 \times 100}{1000}$$

= 1.51%

16. Question

The profit earned on selling an article for Rs.625 is the same as loss on selling it for Rs.435. The cost price of the article is

A. Rs. 520

B. Rs. 530

C. Rs. 540

D. Rs. 550

Hint. Let the CP be x. Then, 625- × = × - 435. Find x.

Answer

Let the CP be x.

When Profit is earned CP = 625 – x

When Loss is incurred CP = × – 435

According to question,

625 – × = x- 435

2 × = 625 + 435

2 × = 1060

× = Rs.530

So, Cost Price is Rs.530.

17. Question

A man buys an article for Rs.150 and makes overhead expenses which are 10% of the cost price. At what price must he sell it to gain 20%?

A. Rs. 182

B. Rs. 192

C. Rs. 198

D. Rs.208

Answer

CP = Rs.150

Overhead Expense = 10% of Rs.150

= Rs.15

So, total cost of an article = 150 + 15

= Rs.165

$$SP = \frac{100 + Gain\%}{100} \times CP$$
$$= \frac{100 + 20}{100} \times 165$$

= Rs.198

18. Question

If an article is sold at a gain of 5% instead of being sold at a loss of 5%, a man gets Rs. 5 more. What is the cost price of the article?

A. Rs. 50

B. Rs. 40

C. Rs. 60

D. Rs. 80

Hint. Let the CP be x. Then, (105% of x) -(95% of x) =5.

Answer

Let the CP be x.

When Profit is earned CP = 1.05x

When Loss is incurred CP = 0.95x

According to question,

1.05 × – 0.95 × =5

0.10 × =5

X= 50

So, Cost Price of an article is Rs.50.

19. Question

A dealer lists his articles at 20% above cost price and allows a discount of 10%. His gain per cent is

A. 10%

B. 8%

C. 9%

D. $8\frac{1}{4}$ %

Answer

Let CP will be Rs.100

Marked Price = Rs.120

10% Discount on Marked Price = 10% of Rs.120

= Rs.12

So, SP = 120 -12

= Rs.108

Gain = SP – CP

= 108 – 100

= Rs.8

$$Gain\% = \frac{Gain \times 100}{CP}$$

= (8 × 100) / 100

= 8%

20. Question

The marked price of an article is 10% more than the cost price and a discount of 10% is given on the marked price. The seller has

A. no gain and no loss

B. 1% gain

C. 1% loss

D. none of these

Answer

When two similar items are sold at same price, one at a gain and other at a loss of same percent. Then always a loss will be occurred.

Loss % = (Common Loss and Gain Percent / 10)^2

= (10/10)^2

= (1)^2

= 1

So, Loss will be 1%.

21. Question

The price of watch including 10% VAT is Rs. 825. What is its basic price?

A. Rs. 742.50

B. Rs.775

C. Rs. 750

D. Rs. 907.50

Answer

VAT = 10%

Selling Price = Rs.825

Let × be the base price.

Vat Amount = 10% of x

= x/10

Base Price + VAT = Selling Price

× + x/10 = 825

11x/10 = 825

× = (825 × 10) / 11

= Rs.750

CCE Test Paper-10

1. Question

By selling a flower pot for Rs.322, a man gains 15%. At what price should he sell it to gain 20%?

Answer

$$CP = \frac{100}{100 + Gain\%} \times SP$$
$$= \frac{100}{100+15} \times 322$$
$$= \frac{100}{115} \times 322$$

= Rs.280

To gain 20%, SP should be

$$SP = \frac{100 + Gain\%}{100} \times CP$$
$$= \frac{100+20}{100} \times 280$$
$$= \frac{120}{100} \times 280$$

=Rs.336

2. Question

If the cost price of 12 pens is equal to the selling price of 16 pens, find the loss per cent.

Answer

Let × be the CP of Pen

SP of 1 pen = x/16

CP of 1 Pen = x/12

Loss = CP – SP

= x/12 – x/16

= x/48

$$Loss\% = \frac{Loss \times 100}{CP}$$

$$= \frac{\frac{x}{48} \times 100}{\frac{x}{12}}$$

= 25%

3. Question

A dealer gets Rs. 30 less if instead of selling a chair at a gain of 12% he sells it at a gain of 8%. Find the cost price of the chair.

Answer

Let × be the Cost Price of the chair.

SP of chair when sold at 12% gain = 112x/100

SP of chair when sold at 8% gain = 108x/100

Now, according to questions,

112x/100 – 30 = 108x/100

4x/100 = 30

× = (30 × 100) / 25

= Rs.750

4. Question

A trader marks his goods at 30% above cost price and allows a discount of 10%. What is his gain per cent?

Answer

Let CP will be Rs.100

Marked Price = Rs.130

10% Discount on Marked Price = 10% of Rs.130

= Rs.13

So, SP = 130 -13

= Rs.117

Gain = SP – CP

= 117 – 100

= Rs.17

$$Gain\% = \frac{Gain \times 100}{CP}$$

= (17 × 100) / 100

= 17%

5. Question

Find the single discount equivalent to two successive discounts of 20% and 10%.

Answer

Let the CP of product is Rs.100

20% discount on CP = Rs.20

Then, Price would be = 100-20

=Rs.80

Now, 10% discount on current price = 10% of Rs.80

= Rs.8

Now, final Selling Price will be = Rs.80 – Rs.8

= Rs.72

Discount Percent =

$$\frac{CP - SP}{100} \times CP$$

$$\frac{100 - 72}{100} \times 100$$

= 28%

So, successive discount of 20% and 10% is 28%

6. Question

Rajan bought a watch for Z 1870 including VAT at 10%. Find the original price of the watch.

Answer

VAT = 10%

Selling Price = Rs.1870

Let × be the base price.

Vat Amount = 10% of x

= x/10

Base Price + VAT = Selling Price

× + x/10 = 1870

11x/10 = 1870

× = (1870 × 10) / 11

= Rs.1700

So, Cost Price of watch is Rs.1700

7. Question

On selling 100 pens, a man gains the selling price of 20 pens. The gain per cent is

A. 20%

B. 25%

C. $16\frac{2}{3}\%$

D. 15%

Answer

Let × be the CP of pen

SP of 100 pens = 100x

Gain of 20 Pens = 20x

CP = SP - Gain

= 100 × – 20x

= 80x

$$Gain\% = \frac{Gain \times 100}{CP}$$

$$= \frac{20x \times 100}{80x}$$

= 25%

8. Question

A man sells a bat for Rs. 100 gaining Rs. 20. His gain per cent is

A. 20%

B. 22%

C. 18%

D. 25%

Answer

SP = Rs.100

Gain = Rs.20

CP = SP – Gain

= 100 – 20

= Rs.80

$$Gain\% = \frac{Gain \times 100}{CP}$$

$$= \frac{20 \times 100}{80}$$

= 25%

9. Question

The selling price of an article is $\frac{6}{5}$ of the cost price. The gain per cent is

A. 15%

B. 20%

C. 25%

D. 30%

Answer

Let × be the CP

SP = 6x/5

Gain = SP –CP

= 6x/5 – x

=x/5

$$Gain\% = \frac{Gain \times 100}{CP}$$

$$= \frac{\frac{x}{5} \times 100}{x}$$

= 20%

10. Question

On selling a chair for Rs. 680, a man loses 15%. To gain 15%, it must be sold for

A. Rs. 800

B. Rs. 860

C. Rs. 920

D. Rs. 884

Answer

SP = Rs.680

Loss % = 15

$$CP = \frac{100}{100 - Loss\%} \times SP$$
$$= \frac{100}{100 - 15} \times 680$$

= Rs.800

$$SP = \frac{100 + Gain\%}{100} \times CP$$
$$= \frac{100 + 15}{100} \times 860$$

= Rs.920

11. Question

A dealer lists his goods at 20% above cost price and allows a discount of 10%. His gain per cent is

A. 10%

B. 9%

C. 8%

D. 12%

Answer

Let CP will be Rs.100

Marked Price = Rs.120

10% Discount on Marked Price = 10% of Rs.120

= Rs.12

So, SP = 120 -12

= Rs.108

Gain = SP – CP

= 108 – 100

= Rs.8

$$Gain\% = \frac{Gain \times 100}{CP}$$

= (8 × 100) / 100

= 8%

12. Question

The price of a watch including 8% VAT is Rs.810. What is its basic price?

A. Rs. 675

B. Rs. 729

C. Rs. 750

D. Rs. 745

Answer

VAT = 8%

Selling Price = Rs.810

Let × be the base price.

Vat Amount = 8% of x

= 8x/100

Base Price + VAT = Selling Price

× + 8x/100 = 810

108x/100 = 810

× = (810 × 100) / 108

= Rs.750

So, Cost Price of watch is Rs.750

13. Question

Fill in the blanks.

(i) The discount is reckoned on the _____ price.

(ii) Gain or loss is always reckoned on the _____

(iii) SP = (Marked price) - (_____)

(iv) VAT is charged on the _____ of the article.

Answer

(i) Marked

Selling Price = Marked Price - Discount

(ii) Cost price

If seller sells any item greater than Cost Price, it is said to have a Gain.

Gain = SP - CP

If seller sells any item less than Cost Price, it is said to have a Loss.

Loss = CP – SP

(iii) Discount

SP is the amount that we pay for an article when purchased.

Marked Price is the price that is without any discount.

Discount is amount which we get as a rebate for purchasing the article.

(iv) Selling price

VAT is always charged on the Selling Price of an article and not on the MRP.

14. Question

Write ‘T’ for true and 'F' for false for each of the following:

(i) SP= $\frac{(100 + loss\%)}{100} \times CP$

(ii) CP = $\frac{100}{(100 + gain\%)} \times SP$

(iii) Gain is reckoned on the selling price.

(iv) The discount is allowed on the marked price.

Answer

(i) False

SP = ((100 – Loss %) / 100) × CP

(ii) True

(iii) False

If seller sells any item greater than Cost Price, it is said to have a Gain.

Gain = SP - CP

(iv) T

Discount = Marked Price – Selling Price